Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

AMERICAN

Journal of Mathematics.

SIMON NEWCOMB, Editor.
THOMAS CRAIG, Associate Editor.

PUBLISHED UNDER THE AUSPICES OF THE

JOHNS HOPKINS UNIVERSITY.

Πραγμάτων ἔλεγχος οὐ βλεπομένων.

VOLUME XII. NUMBER 4.

Baltimore: Publication Agency of the Johns Hopkins University.

AGENTS:

B. WESTERMANN & Co., *New York.*
D. VAN NOSTRAND Co., *New York.*
E. STEIGER & Co., *New York.*
A. C. MCCLURG & Co., *Chicago.*
CUSHINGS & Co., *Baltimore.*
DAMRELL & UPHAM, *Boston.*
TRÜBNER & Co., *London.*
A. HERMANN, *Paris.*
GAUTHIER-VILLARS, *Paris.*
MAYER & MÜLLER, *Berlin.*
JOSEPH BAER & Co., *Frankfort a M.*
KARL J. TRÜBNER, *Strassburg.*

JULY 1890.

PUBLICATION AGENCY OF THE JOHNS HOPKINS UNIVERSITY,

BALTIMORE.

I. AMERICAN JOURNAL OF MATHEMATICS.

SIMON NEWCOMB, Editor, and THOMAS CRAIG, Associate Editor. Quarterly. 4to. Volume XIII in progress. $5 per volume.

II. AMERICAN CHEMICAL JOURNAL.

I. REMSEN, Editor. Eight nos. a year. 8vo. Volume XII in progress. $4 per volume.

III. AMERICAN JOURNAL OF PHILOLOGY.

B. L. GILDERSLEEVE, Editor. Quarterly. 8vo. Volume XI in progress. $3 per volume.

IV. STUDIES FROM THE BIOLOGICAL LABORATORY.

Including the Chesapeake Zoölogical Laboratory. H. N. MARTIN, Editor, and W. K. BROOKS, Associate Editor. 8vo. Volume IV in progress. $5 per volume.

V. STUDIES IN HISTORICAL AND POLITICAL SCIENCE.

H. B. ADAMS, Editor. Monthly. 8vo. Volume VIII in progress. $3 per volume.

VI. JOHNS HOPKINS UNIVERSITY CIRCULARS.

Containing reports of scientific and literary work in progress in Baltimore. 4to. Vol. IX in progress. $1 per year.

VII. JOHNS HOPKINS HOSPITAL REPORTS.

8vo. Monthly. $5 per year.

VIII. JOHNS HOPKINS HOSPITAL BULLETIN.

4to. Monthly. $1 per year.

IX. ANNUAL REPORT.

Presented by the President to the Board of Trustees, reviewing the operations of the University during the past academic year.

X. ANNUAL REGISTER.

Giving the list of officers and students, and stating the regulations, etc., of the University. *Published at the close of the academic year.*

The *University Circulars*, *Annual Report*, and *Annual Register* will be sent by mail for one dollar per annum.

Communications in respect to exchanges and remittances may be sent to the Johns Hopkins University (Publication Agency), Baltimore, Maryland.